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US 4886509 A US 4064880 A

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(54) MALE INCONTINENCE GUARD

(57) A male incontinence guard comprises a liquid impermeable sheet (5) a liquid permeable sheet (7) and an absorbent sheet therebetween (6) and is folded to produce two "mirror image" Z shapes connected by a base 1 continuous therewith. A sealing element surrounding three sides of the laminate produces a bag shaped article which may be attached inside a conventional absorbent article or underpants by a fastener (10) disposed on the outer facing side of the liquid impermeable sheet. The device minimises problems of leaking particularly associated with male incontinence. There is also described a method for manufacturing the article.

Fig.3

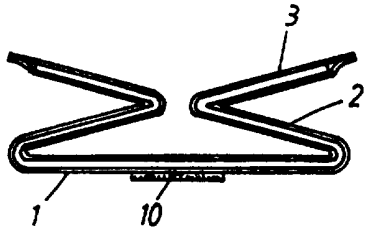

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Fig. 1

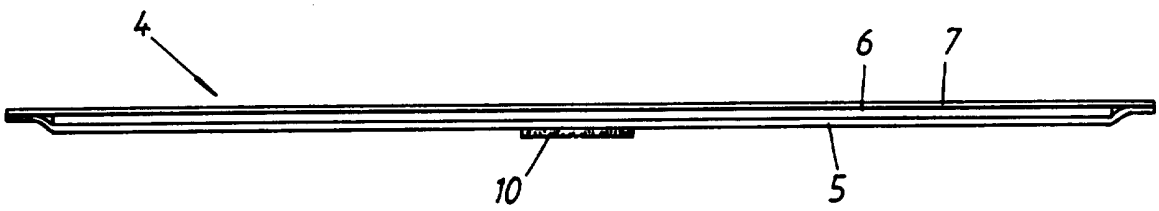


Fig. 2

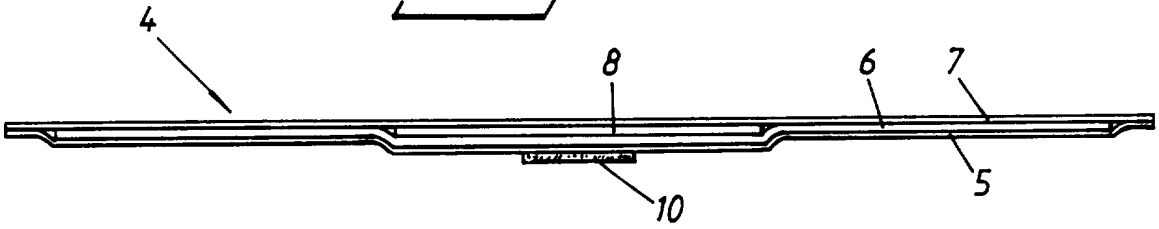


Fig. 3

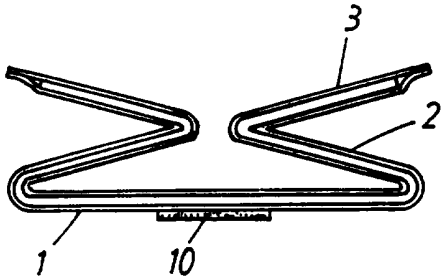


Fig. 4

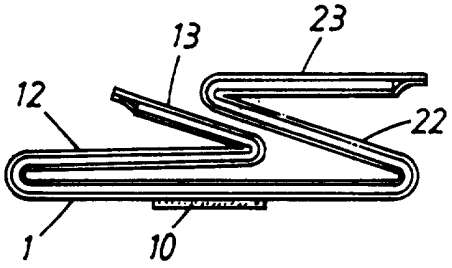
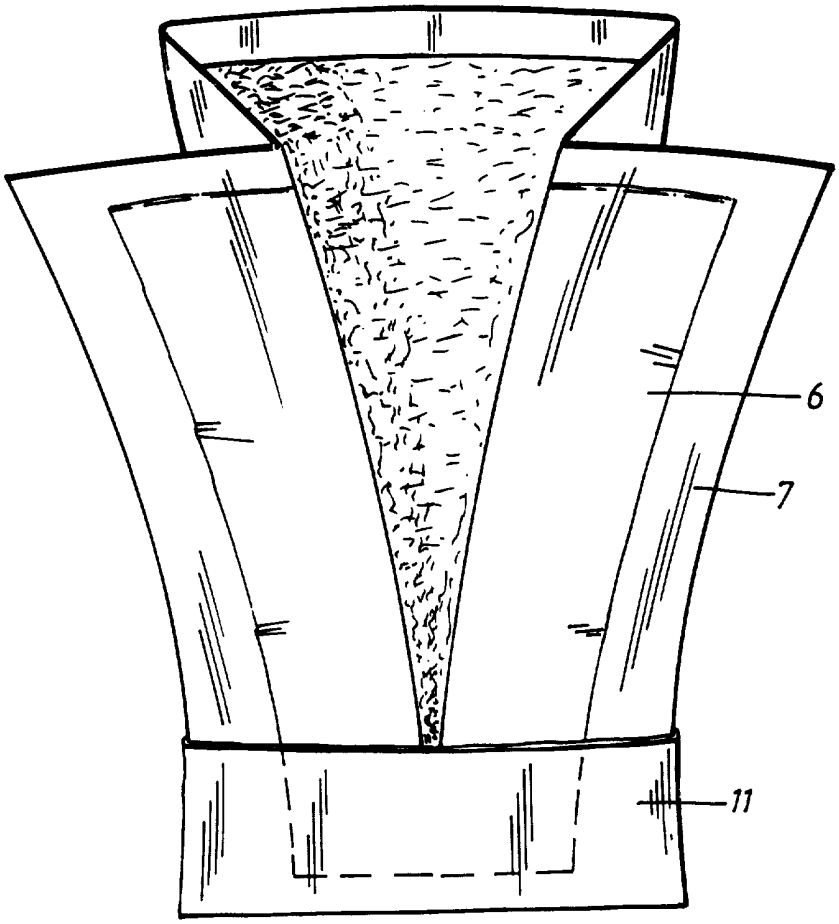


Fig.5



AN INCONTINENCE GUARD AND METHOD FOR ITS MANUFACTURE

BACKGROUND

The present invention relates to an incontinence guard which is intended to be worn by a male user and to be attached around the wearer's genitals in use within an absorbent article such as a diaper or an incontinence guard, or within the conventional underpants of the user, and also to a method of manufacturing the incontinence guard.

TECHNICAL BACKGROUND

When designing incontinence guards for adults, it is necessary to take into account that the degree of incontinence and therewith the quantity of liquid discharged will vary widely from individual to individual. Furthermore, the absorption capacity requirement can vary with one and the same person. For instance, a greater absorption capacity is required over the nighttime hours, since the incontinence guard cannot be changed equally as often during the night as during the day. Consequently, in order to meet the different absorption capacity requirements, it is necessary to produce adult incontinence guards in several sizes. A large size range, however, results in higher costs, both with regard to manufacture and to storage of the incontinence guards. It is therefore desirable to restrict the number of sizes as far as possible.

The incontinence guard shall also be small and discrete when worn, and be very reliable against leakage. Since the size of the guard is directly connected with its absorption capacity, the guard should be constructed in a manner which will utilize the available absorbent material to the full. Male users of incontinence guards present a particular problem in this regard, since the male anatomy makes it difficult to know precisely where in the incontinence guard

the liquid will be discharged. This is because the penis of the wearer is able to move within the guard, for instance in response to wearer movement. Furthermore, it is possible that the incontinence guard has been put on initially with the penis wrongly positioned, for instance turned upwards towards the wearer's stomach or towards an edge part of the incontinence guard. The incontinence guard may have been wrongly fitted on the wearer because the incontinent wearer is handicapped with regard to hand movements, a handicap which is particularly usual among older men. Inexperience or haste on the part of the nurse fitting the incontinence guard may be another reason.

Random parts of the absorbent material will be utilized in absorbing liquid, depending on the position of the penis within the incontinence guard. In this regard, there is a serious danger that an edge-part of the guard, for instance, will be saturated with liquid, whereafter further liquid that is discharged will leak from the guard, despite the fact that parts of the absorbent material remain unused. There is also a serious risk of urine splashes and leakages when the penis is pointed straight up along the stomach of the incontinent person. This problem is particularly manifest when the incontinent lies on his back. Since many incontinent men in hospital wards are confined to bed, the care of these patients would be greatly facilitated if the problems relating to urine leakage were to be solved, so as to reduce the number of times that clothes and bed linen need to be changed. Older men, whose penis is often small and retarded, present a special problem in this regard, since they are unable to use urine collecting hoses, bottles or the like which are intended to be secured to or fitted over the penis. The need for a well-functioning incontinence guard is particularly significant for men belonging to this particular category.

EP 140 478 describes an incontinence guard in the form of a

liquid-impermeable bag filled with absorbent material. The bag is provided with an opening through which body liquid is able to pass into the absorbent material. In the case of one embodiment intended for male users, a pocket is provided in the proximity of the bag opening. In use, the user's penis is inserted down in the pocket, so that discharged urine will be led in through the opening and absorbed within the bag.

SE 8903869-9 describes an absorbent insert intended for use inside a diaper or an incontinence guard. The insert is comprised of an absorbent body enclosed between two casing sheets of mutually different liquid-permeability. In this case, the inner casing sheet, which in use is intended to lie proximal to the wearer, has a higher liquid-permeability than the outer casing sheet, which in use is intended to lie proximal to the diaper or the incontinence guard. The concept is that body liquid absorbed by the insert will pass through the outer casing sheet of the insert slowly and in a controlled manner and be absorbed by the diaper or incontinence guard.

TECHNICAL PROBLEMS

One problem associated with the manufacture of male incontinence guards that are intended to be used separately or as inserts in a diaper or in another incontinence guard and that have a configuration which likens a bag or pocket, resides in the possibility of manufacturing such guards in a simple and cost-effective manner. The manufacture of the aforesaid incontinence guards often includes a plurality of working stages, such as mat-forming or the laying-out of absorbent material, clipping, folding, and joining the various components together, etc.

DISCLOSURE OF THE INVENTION

The present invention provides a male incontinence guard and

a method of manufacturing said male incontinence guard in a simple and cost-effective manner. The incontinence guard is intended to be carried by a male user and, in use, is intended to be fitted around the wearer's genitals, within an absorbent article such as a diaper, or within another incontinence guard, or within the normal underclothes of the user. In this case, the incontinence guard is comprised of a generally liquid-impermeable sheet, an absorbent layer and a liquid-permeable sheet, preferably made of nonwoven material and joined together in the aforesaid order, wherein the generally liquid-impermeable sheet and the liquid-permeable sheet have a greater extension than the absorbent layer in all directions. The generally liquid-impermeable sheet, the absorbent layer and the liquid-permeable sheet are also folded so that when seen in cross-section, they will have the form of a Z whose base or foot is joined to a mirror image of the Z, therewith forming a bottom piece, two intermediate elements and two top elements, and a liquid-impermeable sealing element which lies on top of part of the liquid-permeable sheet. The incontinence guard also includes one or more fastener devices which are fastened to the rear side of the generally liquid-impermeable sheet. In the manufacture of said guards, one or more of the components of the incontinence guard can be delivered to the manufacturing process from reels on which said one or more components is/are supplied. The guard components can be glued, welded or otherwise bonded together to form finished products.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a cross-sectional view of a preferred material composition of an inventive incontinence guard.

Fig. 2 is a cross-sectional view of a further preferred material composition of an inventive incontinence guard.

Fig. 3 is a cross-sectional view of a preferred embodiment of an inventive incontinence guard.

Fig. 4 is a cross-sectional view of another preferred embodiment of an inventive incontinence guard.

Fig. 5 illustrates a preferred embodiment of an inventive incontinence guard.

DESCRIPTION OF EMBODIMENTS

The invention, which is illustrated in the aforesaid Figures with associated reference numbers, is comprised in a first preferred embodiment, illustrated in Figs. 1, 3 and 5, of a liquid-permeable sheet 7, preferably made of nonwoven material, a generally liquid-impermeable sheet 5, preferably made of plastic material, and an absorbent layer 6 encased therebetween. In the preferred embodiment, the liquid-permeable layer 7 and the generally liquid-impermeable sheet 5 have the same extension, whereas the absorbent layer 6 is slightly smaller, and when the sheets are joined together, there is formed around the incontinence guard 4 an edge-margin which is thinner than the remainder of the incontinence guard 4. The preferred embodiment also includes a fastener device, in the illustrated preferred case a so-called hook and loops type fastener, which is fastened to the rear side of the generally liquid-impermeable sheet 5 and functions to hold the incontinence guard 4 firmly within a diaper or some other incontinence guard. The aforesaid first preferred embodiment also includes a sealing element 11 which is placed on top of the liquid-permeable sheet 7 in the region of the incontinence guard 4 which is normally lower in use. The sealing element 11 is joined to the generally liquid-impermeable sheet 5 along three sides thereof so as to obtain a liquid-tight, bag-shaped configuration, as shown in Fig. 5. At this stage, the main part of the incontinence guard 4 comprised of the generally liquid-impermeable sheet

5, the absorbent layer 6 and the liquid-permeable sheet 7 has a shape similar to a Z whose base or foot is connected to a mirror image of the Z, such as to present the configuration illustrated in Figs. 3 and 5.

In the case of a second preferred embodiment, a further absorbent body 8 is placed centrally between the absorbent layer 6 and the liquid-permeable sheet 7, as evident from Fig. 2 for instance, wherein the absorbent body 8 defines the width of the bottom or base member 1 of the aforesaid mutually joined Z-shapes. The second preferred embodiment coincides with the first preferred embodiment in other respects.

According to a third preferred embodiment, the intermediate element 12 and the top element 13 of the mutually joined Z-shapes are formed differently to the corresponding intermediate element 22 and top element 23 of said third preferred embodiment, so that one side will overlap the other, as shown in Fig. 4.

The generally liquid-impermeable sheet 5 of each of the aforesaid embodiments is able to allow liquid to pass through when the incontinence guard 4 is saturated. The liquid that passes through the generally liquid-impermeable sheet is transported preferably to a diaper or to the incontinence guard in which the incontinence guard 4 is fastened.

The incontinence guard of each of the aforesaid embodiments is manufactured preferably from material in reel form, i.e. the materials used are supplied on reels. In manufacture, the generally liquid-impermeable sheet 5 is advanced first, preferably continuously, whereupon the absorbent layer 6 and/or the absorbent body 8 is/are then delivered, preferably in reel form and are cut into appropriate lengths upon delivery. The liquid-permeable sheet 7 is then applied, preferably continuously and from a reel. The various compo-

nents can be joined together in a variety of different ways, preferably by gluing although ultrasonic welding or laser welding, etc., may be used. The aforesaid order in which the guard is manufactured may, of course, be reversed.

The aforedescribed, mutually joined components consisting of the generally liquid-impermeable sheet 5, the absorbent layer 6 and/or the absorbent body 8, and the liquid-permeable sheet 7 are then folded, wherein the bottom or base piece 1 is preferably held in a flat state while folding the intermediate elements 2; 12; 22 and the top elements 3; 13; 23 inwardly and outwardly respectively, so as to obtain the desired configuration. The folded product is then pressed together, preferably with the aid of a roller, whereupon the liquid-tight sealing element 11 is applied and secured by gluing, welding, etc. The fastener device 10 is preferably comprised of a so-called hook and loops type fastener material or tape and can be fastened to the rear side of the generally liquid-impermeable sheet 5 at any stage of the manufacturing process. However, the fastener device is preferably applied prior to cutting-off the incontinence guard, which follows application of the liquid-tight sealing element 11. The material from which the fastener device 10 is obtained is also preferably supplied on a reel and clipped to appropriate lengths, preferably prior to being fastened to the rear side of the generally liquid-impermeable sheet 5.

It will be understood that the invention is not restricted to the aforedescribed exemplifying embodiments thereof and that other embodiments are conceivable within the scope of the inventive concept.

CLAIMS

1. An incontinence guard which is intended to be carried by a male user and which, when in use, is intended to be positioned around the user's genitals, inside an absorbent article such as a diaper or inside another incontinence guard, or inside the wearer's normal underpants, **characterized** in that the incontinence guard (4) is comprised of a generally liquid-impermeable sheet (5), an absorbent layer (6) and a liquid-permeable sheet (7), preferably made of nonwoven material, joined together in said order, wherein the generally liquid-impermeable sheet (5) and the liquid-permeable sheet (7) have a larger extension than the absorbent layer (6) in all directions; and in that the generally liquid-impermeable sheet (5), the absorbent layer (6) and the liquid-permeable sheet (7) are folded in such a manner that, when seen in cross-section, they have the form of a Z whose base is joined to a mirror image of said Z, therewith to form a bottom piece (1), two intermediate elements (2) and two top elements (3), wherein the guard further includes a liquid-impermeable sealing element (11) which lies on top of a part of the liquid-permeable sheet (7), and one or more fastener devices (10) attached to the rear side of the generally liquid-impermeable sheet (5).

2. An incontinence guard according to Claim 1, **characterized** in that the liquid-impermeable sealing element (11) is comprised of liquid-impervious film material, preferably the same sort of material as that from which the generally liquid-impermeable sheet (5) is made, wherein the liquid-impermeable sealing element (11) has a width which coincides preferably with the width of the finished incontinence guard.

3. An incontinence guard according to Claim 2, **characterized** by a further absorbent body (8) having a width adapted to the width of the bottom piece (1), wherein the further absorbent body is placed between the absorbent layer (6) and the

liquid-impermeable sheet (7), preferably comprised of nonwoven material.

4. An incontinence guard according to Claim 3, **characterized** in that the incontinence guard is so folded that the intermediate elements (12; 22) and the top element (13; 23) are differently formed and therewith overlap one another; preferably the intermediate element (12) of one side is longer than the intermediate element (22) of the other side, the top element (13) of one side being shorter than the top element (23) of the other side.

5. An incontinence guard according to Claim 4, **characterized** in that the permeability of the generally liquid-impermeable sheet (5) is adapted so as to permit liquid to penetrate said sheet when the absorbent unit comprised of the absorbent layer (6) and/or the absorbent body (8) in the incontinence guard (4) is saturated with liquid.

6. An incontinence guard according to one or more of the preceding Claims, **characterized** by a fastener device (10) which is attached to the rear side of the generally liquid-impermeable sheet (5) of said guard and which is comprised of one or more adhesive tapes, preferably protected by release paper prior to use.

7. An incontinence guard according to Claim 6, **characterized** in that the fastener device (10) is comprised of one or more so-called hook and loops type fastener elements.

8. A method for manufacturing an incontinence guard according to one or more of the preceding Claims, **characterized** by manufacturing the incontinence guard (4) preferably in the direction of movement of the production path, wherein the generally liquid-impermeable sheet (5), the absorbent layer (6), the liquid-permeable sheet (7), the fastener device (10) and, when applicable, the absorbent body (8), included in

said guard are delivered, cut and joined together to form a continuous web-like element and thereafter preferably folded in the production length direction in a manner such as to form a bottom piece (1) which is covered from respective longitudinally extending sides by intermediate elements (2, 12, 22) whose extensions, the top elements (3, 13, 23) are folded out from the centre region of the guard so as to cover the intermediate elements (2, 12, 22) either completely or partially, whereafter the incontinence guard is sealed transversely to the longitudinal direction by means of a liquid-impermeable sealing element (11) at an ultimate short end of the finished product and along both perpendicular sides of the sealing element (11) and then cut into required finished lengths.

9. A method according to Claim 8, **characterized** in that a further absorbent body (8) having a width which preferably coincides with the width of the bottom piece (1) is delivered at the same time as the generally liquid-impermeable sheet (5), the absorbent layer (6) and the liquid-permeable sheet (7), said absorbent body (8) being delivered in between the absorbent layer (6) and the liquid-permeable sheet (7).

10. An incontinence guard as claimed in claim 1 substantially as hereinbefore described with reference to and as illustrated in any one of Figures 1, 2, 3, 4 or 5 of the accompanying drawings.

11. A method as claimed in claim 8 substantially as hereinbefore described with reference to any one of Figures 1, 2, 3, 4 or 5 of the accompanying drawings.

Patents Act 1977 11 **Examiner's report to the Comptroller under Section 17 (The Search report)**	Application number GB 9525256.5
Relevant Technical Fields (i) UK Cl (Ed.O) A5R (RCED, RPF, RPG) (ii) Int Cl (Ed.6) A61F 5/44, 5/453	Search Examiner DR J HOULIHAN Date of completion of Search 26 FEBRUARY 1996
Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii) ONLINE: WPI, JAPIO	Documents considered relevant following a search in respect of Claims :- 1-11

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
A	US 4886509	(MATTSSON L) column 3 line 62-.4 line 11	
X	US 4064880	(LOGAN D J) column 1 lines 17-19; column 2 lines 8-13; Figure 3	1

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).